

CLAIMS

1. A laser level disposable on a reference surface comprising:
 - a housing;
 - a pendulum pivotably connected to the housing;
 - 5 a first laser diode disposed on the pendulum for emitting a first laser beam along a first path; and
 - a first lens disposed on the pendulum in the first path for converting the first laser beam into a first planar beam, the first planar beam forming a first line on the reference surface.
- 10 2. The laser level of Claim 1, further comprising a second laser diode disposed on the pendulum for emitting a second laser beam along a second path, and a second lens disposed on the pendulum in the second path for converting the second laser beam into a second planar beam, the second planar beam forming a second line on the reference surface.
- 15 3. The laser level of Claim 2, wherein the first and second lines are substantially perpendicular.
4. The laser level of Claim 2, wherein the first and second lines are substantially parallel.
5. The laser level of Claim 1, further comprising a detector circuit disposed in the housing for detecting a feature behind or underneath the reference surface.
- 20 6. The laser level of Claim 5, wherein the detector circuit detects at least one of the group consisting of studs, wire and pipes.
7. The laser level of Claim 5, wherein the detector circuit controls the first laser diode so that, upon detecting the feature, the first laser diode lights up.

8. The laser level of Claim 5, wherein the detector circuit does not control the first laser diode.
9. The laser level of Claim 1, further comprising a pendulum locking mechanism for selectively locking the pendulum.
- 5 10. The laser level of Claim 1, wherein the first line is substantially horizontal and the reference surface is a substantially vertical wall.
11. The laser level of Claim 1, wherein the housing at least partially encloses the pendulum.
12. The laser level of Claim 12, wherein the housing has at least one window for
- 10 allowing the first planar beam to exit therethrough.
13. The laser level of Claim 12, wherein the housing is configured so that the first planar beam cannot exit through the at least one window when the pendulum is at a selected angle relative to the housing.
14. A detection instrument disposable on a reference surface comprising:
15 a housing;
a first laser diode disposed in the housing for emitting a first laser beam along a first path;
a first lens disposed in the housing in the first path for converting the first laser beam into a first planar beam, the first planar beam forming a first line on the reference surface;
20 and
a detector circuit disposed in the housing for detecting a feature behind or underneath the reference surface.

UTILITY PATENT

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15. The detection instrument of Claim 14, further comprising a second laser diode disposed in the housing for emitting a second laser beam along a second path, and a second lens disposed in the housing in the second path for converting the second laser beam into a second planar beam, the second planar beam forming a second line on the reference surface.
16. The detection instrument of Claim 15, wherein the first and second lines are substantially perpendicular.
17. The detection instrument of Claim 15, wherein the first and second lines are substantially parallel.
18. The detection instrument of Claim 14, wherein the detector circuit detects at least one of the group consisting of studs, wire and pipes.
19. The detection instrument of Claim 14, wherein the detector circuit controls the first laser diode so that, upon detecting the feature, the first laser diode lights up.
20. The detection instrument of Claim 14, wherein the detector circuit does not control the first laser diode.
21. A laser level disposable on a reference surface comprising:
- a housing;
 - a first laser diode disposed in the housing for emitting a first laser beam along a first path;
 - a first lens disposed in the housing in the first path for converting the first laser beam into a first planar beam, the first planar beam forming a first line on the reference surface;
 - and
 - at least one bubble vial on the housing.

22. The laser level of Claim 21, further comprising a second laser diode disposed in the housing for emitting a second laser beam along a second path, and a second lens disposed in the housing in the second path for converting the second laser beam into a second planar beam, the second planar beam forming a second line on the reference surface.
- 5 23. The laser level of Claim 22, wherein the first and second lines are substantially perpendicular.
24. The laser level of Claim 22, wherein the first and second lines are substantially parallel.
25. The laser level of Claim 21, further comprising a detector circuit disposed in the
10 housing for detecting a feature behind or underneath the reference surface.
26. The laser level of Claim 25, wherein the detector circuit detects at least one of the group consisting of studs, wire and pipes.
27. The laser level of Claim 25, wherein the detector circuit controls the first laser diode so that, upon detecting the feature, the first laser diode lights up.
- 15 28. The laser level of Claim 25, wherein the detector circuit does not control the first laser diode.
29. The laser level of Claim 21, wherein the first line is substantially horizontal and the reference surface is a substantially vertical wall.
30. The laser level of Claim 21, wherein the housing has at least one window for
20 allowing the first planar beam to exit therethrough.
31. A laser level disposable on a reference surface comprising:
a housing;

a first laser diode disposed in the housing for emitting a first laser beam along a first path;

a first lens disposed in the housing in the first path for converting the first laser beam into a first planar beam, the first planar beam forming a first line on the reference surface;

5 and

a hanging assembly connected to the housing for mounting the laser level to the reference surface.

32. The laser level of Claim 31, further comprising a second laser diode disposed in the housing for emitting a second laser beam along a second path, and a second lens disposed
10 in the housing in the second path for converting the second laser beam into a second planar beam, the second planar beam forming a second line on the reference surface.

33. The laser level of Claim 32, wherein the first and second lines are substantially perpendicular.

34. The laser level of Claim 32, wherein the first and second lines are substantially
15 parallel.

35. The laser level of Claim 31, further comprising a detector circuit disposed in the housing for detecting a feature behind or underneath the reference surface.

36. The laser level of Claim 35, wherein the detector circuit detects at least one of the group consisting of studs, wire and pipes.

20 37. The laser level of Claim 35, wherein the detector circuit controls the first laser diode so that, upon detecting the feature, the first laser diode lights up.

38. The laser level of Claim 35, wherein the detector circuit does not control the first laser diode.

39. The laser level of Claim 31, wherein the first line is substantially horizontal and the reference surface is a substantially vertical wall.

40. The laser level of Claim 31, wherein the hanger assembly comprises a reference surface assembly that contacts the reference surface.

5 41. The laser level of Claim 40, further comprising a magnet disposed on one of the reference surface assembly and the housing, and a metal plate disposed on the other of the reference surface assembly and the housing.

42. The laser level of Claim 40, wherein the reference surface assembly comprises at least one of the group consisting of a pin and a mandrel.

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